



DSP In-Wall Loudspeakers

DSP520 & DSP640



DSP520 installation

Increasingly, home theatre installations call for in-wall loudspeaker designs, and Meridian's existing DSP in-wall model, the DSP420, has been one of the company's most popular loudspeaker since its introduction.

To satisfy the requirements of a broader range of applications, Meridian has introduced two new DSP-based full-range in-wall loudspeakers: the compact DSP520 loudspeaker, and the larger DSP640.

Sonic inspiration for these new designs came from the highly-praised M6 loudspeaker released in 2012. This tall, conical loudspeaker features a 140mm bass driver and an 85mm wide-range driver, and the same drivers are used in different combinations in the current in-wall systems, giving them impressive performance on many levels, including superior mechanical integrity, increased bass and reduced upper mid-range colouration.

The DSP520 features a single wide-range driver and single bass driver, like the M6. The larger DSP640 unit includes dual bass and full-range drivers.

The new DSP In-wall loudspeakers have been developed specifically to deliver wide dispersion for maximum listening area, with minimum unwanted diffraction thanks to careful baffle and grille design. The on-board DSP provides thermal and dynamic bass protection while retaining very

accurate transients, ensuring that when the loudspeaker is played at high levels, even over prolonged periods of time, it always delivers a clean, detailed and accurate sound.

The loudspeakers can be mounted vertically or horizontally, in a wall or in a ceiling, and voicing compensation is included for installation behind the grille (supplied) or fabric/screen material. However, they also include Meridian's new Centre Elevation technology to raise the audio image from a loudspeaker mounted horizontally under the screen, making behind-screen mounting less necessary.

Centre front channel loudspeakers are some of the most important loudspeakers in a system, as they have to provide clear dialogue whatever else is going on. Ideally, the image from the centre front loudspeaker should appear from the centre of the screen: yet mounting the loudspeaker behind the screen compromises the sound especially at high frequencies, while mounting it below the screen means the image is unnaturally depressed.

Meridian's Centre Image Elevation technology uses the latest psychoacoustic research to raise the perceived image location from an under-screen loudspeaker so that it appears to come from the centre of the screen or as desired.

The in-wall designs also include Meridian's innovative Enhanced Bass Alignment (EBA) technology. Normally, the low bass

Product highlights

Ultra-narrow (200mm) design delivers full DSP loudspeaker performance in-wall

Back-box and frame system allows simple and easy installation, with the flexibility to ensure precise positioning

Loudspeaker array is built into self-contained enclosure that mounts into back-box

DSP-based design delivers superior performance to conventional designs – equivalent to an enclosure of eight times the physical volume.

Features 140mm bass and 85mm wide-range drivers based on the M6, for full-frequency response

Enhanced Bass Alignment enhances bass transient response

Centre Elevation raises audio image to the correct height

Two full-range models; may be mounted vertically or horizontally, in walls or ceilings

All aspects of the design including baffle and grille have been developed for maximum dispersion and listening area plus minimum unwanted diffraction

Perfect partner for stand-alone Meridian DSP loudspeakers and the DSW Subwoofer, with complementary sound

Grille may be painted to match interiors

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in a loudspeaker system arrives late: this smears transients and muddies the sound. Enhanced Bass Alignment uses two different technologies to time-align high, mid and upper bass frequencies with the low bass, resulting in audibly improved bass transients and added life and clarity. Only a fully digital DSP-based loudspeaker system like those pioneered by Meridian is able to provide the complex signal processing required by EBA.

The use of a wide-range driver across the speech band helps create a loudspeaker with an effortless sound that remains clear, open and spacious, even at high listening levels. Meanwhile, the bass end is crossed over at 200Hz, just as in the flagship DSP8000, with a full-scale high-resolution Meridian DSP crossover. Meridian's unique suite of proprietary technologies provides a lifelike sound at all volume levels. DSP processing throughout delivers a level of performance matching that of a conventional loudspeaker of eight times the physical volume, while an 'apodising' upsampling filter delivers maximum digital audio quality.

Both products in the current range include powerful amplifiers, one for each driver. A 100W Class AB amplifier powers each wide-range driver, while a 150W Class D amplifier powers the bass drivers. These amplifiers have been designed to operate comfortably and run perfectly cool, even at the highest listening levels.

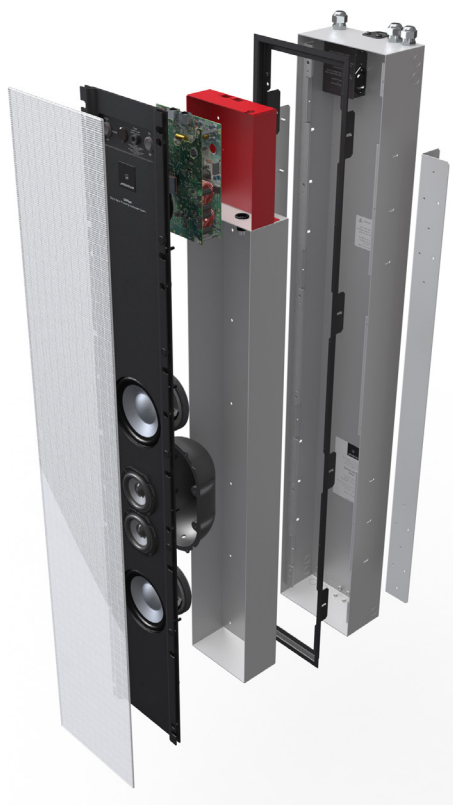
Each unit is built into a completely integrated, narrow (total 200mm wide) all-metal frame enclosure system, with a carefully-calculated internal volume to provide the required acoustic characteristics for the drivers. This self-contained enclosure mounts to a frame which is in turn mounted into the fireproof rough-in box, which is designed for mounting into new-build partition and stud style walls and provides power and SpeakerLink signal I/O. It can alternatively be retrofitted into stud or brick/stone-built walls. The loudspeaker enclosure itself then mounts on to the frame, and the perforated steel grille attaches to rubberised magnets in the aluminium extrusion that forms the front panel of the loudspeaker enclosure.

The paintable grille is magnetically-retained. All the elements – rough-in box, frame, loudspeaker enclosure, included scrim and grille – include room for adjustment so that the entire assembly can be fitted with precision into almost any type of wall. See *exploded illustration, right*.

The rough-in box kit includes a template to determine mounting positions, plus a mask to protect the box during plastering, etc, ensuring simple, flexible and easy installation.

The drivers are mounted into the front extrusion of the enclosure itself, while a separate upper case holds the electronics, consisting of DSP, digital audio converters and amplification. The front of the extrusion carries the on/off rocker switch, fuse holder, an infra-red receptor window and a three-way (Left-Centre-Right) channel selector rocker switch. When switched to Centre, the loudspeaker equalisation is optimised for horizontal centre use. A LED indicator shows the loudspeaker power status.

Inspired by aspects of the design of the M6 free-standing loudspeaker, and as a result of the flexibility of Meridian's award-winning DSP approach to loudspeaker design, these DSP in-wall models have a complementary sound to that of Meridian's free-standing loudspeakers and can be easily mixed and matched with free-standing Meridian models. If additional bass reproduction is required, they can be augmented by the DSW free-standing subwoofer in the same way as other Meridian loudspeakers.



DSP640 exploded rendering.

Outline Specifications

Input

- Meridian SpeakerLink connector (RJ45)

Output

- Meridian SpeakerLink connector (RJ45)

Drivers

- 85mm wide-range & 140mm bass
- DSP520: one of each; DSP640: two of each;

Amplification

- 1x 100W Class AB amplifier per wide-range driver
- 1x 150W Class D amplifier per bass driver

Construction

- All-metal construction throughout, consisting of back-box, mounting frame, aluminium extruded baffle with rear enclosure and front steel grille

Dimensions

- Visible grille on wall all models:
W x D: 222.5 mm (8.73 in) x 4.0 mm (0.16 in).
H DSP520: 820 mm (32.28 in);
H DSP640: 1251.3 mm (49.25 in).
- For wall cutout and rough-in box dimensions, see engineering drawings and installation instructions

Front panel

- On/off rocker switch, Fuse holder, IR window
- Rocker switch selects left-centre-right channel operation
- LED indicator shows power status

Power

- IEC mains connector included in back-box connects to flying lead attached to enclosure



DSP520



DSP640

E&OE. Specifications subject to change without notice. Original measurements use SI units. Dimensions should be confirmed against the original device or dimensioned engineering drawings.